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09/932,050	08/17/2001	Yoshinori Atsumi	09792909-5142	4510

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EXAMINER	
DOVE, TRACY MAE	
ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
12/19/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/932,050	ATSUMI ET AL.	
	Examiner	Art Unit	
	TRACY DOVE	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,15-18 and 22-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,15-18 and 22-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the communication filed on 10/23/08. Applicant's arguments have been considered, but are not persuasive. Claims 1, 4, 15-18 and 22-32 are pending.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/23/08 has been entered.

Claims Analysis

Claims 1 and 4 recite "a sintered mesophase carbon material prepared by sintering a mesophase carbon material", which is not given patentable weight because it is a product-by-process limitation.

Claim Objections

Claim 32 is objected to because of the following informalities: the two listed materials should be separated by an "or". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4, 15-18 and 22-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 4 recite a binderless anode comprising a sintered mesophase carbon material and an anode active material comprising Li and a tin or silicon containing metal material. However, Example 2 of the present specification discloses "Mg2Si was mixed with mesophase carbon not sintered" (page 12). The specification does not appear to disclose a sintered mesophase carbon material in combination with the claimed anode active material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 15-18, 23-28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inamasu, JP 10-312789.

Inamasu teaches a nonaqueous electrolyte secondary battery comprising an active material phosphoric acid compound of the formula Li_xFePO_4 (x depends of the valence of Fe) for the positive or negative electrode active material (0007,0011). Note iron has two possible valence states, 2+ or 3+, and phosphate has a 3- charge. Therefore, $0 \leq x \leq 1$. The Li_xFePO_4 active material has an average grain size (particle

diameter) of 0.1-100 μm (0020). Examiner points out that Li_xFePO_4 is a preferred compound disclosed by the present specification on page 5. It is important to use a small active material to improve cycle characteristics of the battery (0007). When the phosphoric acid compound is used as the positive active material, the negative active material may be a carbon material such as graphite, lithium or a lithium alloy. Graphite intercalates (dopes) lithium (0018). Lithium metal, lithium alloy and carbon material are all typical materials used for the negative electrode active material of the nonaqueous secondary battery (0002-0004). The electrode materials may be baked (0021) or sintered (0023). The nonaqueous electrolyte may include an electrolyte solution comprising an organic solvent (e.g., propylene carbonate) and an electrolyte salt (e.g., $LiClO_4$) (0012).

The electrodes may include conductive agents, binders or fillers (0013). The electrodes are configured into a film-like structure (molded body) (0009). The negative electrode may include silicon or germanium (0018). Inamasu does not explicitly state the negative electrode material is a binderless sintered material. However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Inamasu teaches the anode optionally includes a binder (may or may not be present). One of skill would have known that sintered carbonaceous anode materials are generally formed without use of a binder, while non-sintered carbonaceous anode materials are generally formed with the use of a binder. Inamasu teaches a sintered electrode material.

The type of starting carbon material is considered obvious in view of the teachings of Inamasu. Product-by-process limitations, in the absence of unexpected results, are obvious.

Response to Arguments

Applicant's arguments filed 9/23/08 have been fully considered but they are not persuasive. Applicant asserts the final rejection of claim 1 fails to address the limitation "a binderless anode comprising: a sintered mesophase carbon material prepared by sintering a mesophase carbon material, said sintered mesophase carbon material being capable of doping/dedoping lithium". Examiner disagrees. Examiner has stated that product by process limitations will not be given patentable weight in the absence of unexpected results. Thus, the claim only requires sintered carbon (graphite). Inamasu teaches the electrode materials may be baked (0021) or sintered (0023). Graphite intercalates (dopes) lithium (0018). If Applicant would prefer to state on the record that the "sintered mesophase carbon material" of claim 1 is not graphite, Examiner will reconsider her position. Furthermore, Inamasu teaches the electrodes may include conductive agents, binders or fillers (0013). Thus, Inamasu merely teaches a binder for the anode is optional. One of skill would have known that electrodes that are subjected to sintering are typically not formed using a binder.

For the record, one cannot "change $LiCoO_2$ into $Li_xFe_yPO_4$ using sintered mesophase carbon". Nor can one "change an anode into a binderless anode with sintered carbon from an anode with a binder and sintered mesophase carbon using $Li_xFe_yPO_4$". It is unclear what Applicant intended to argue.

Applicant argues Examiner's position that one would have been motivated to select a sintered carbon material because sintered carbon materials are "generally formed without use of a binder" is wholly unsupported. However, Applicant admits as much on page 7 of the present specification that discloses no binder is used for a sintered carbon material. Furthermore, Moriguchi US 6,576,369 teaches "in general, a graphite powder is applied to a metal base serving as a current collector with the aid of a suitable binder and is shaped thereon. Alternatively, a sintered electrode may be produced from the graphite powder without use of a binder" (15:31-38). One of skill would have known that sintering causes the particles to adhere (bind) together, thus negating the need for a binder.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). At least Moriguchi teaches sintered carbon material anodes are generally formed without the use of a binder.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tracy Dove/
Primary Examiner, Art Unit 1795
December 18, 2008